

Name: \_\_\_\_\_ TP: \_\_\_\_\_

**Failure to show all work and write in complete sentences will result in LaSalle!**

1. Let $e(x) = x^2 + x$ and $y(x) = x^2 + 5$ . Find $(e \circ y)(2)$ .	2. Let $f(x) = 5x - x$ and $g(x) = x + 8$ . Find $g(f(-2))$ .	3. Let $f(x) = 2x - 6$ and $g(x) = x + 8$ . a) Find $g(f(-3))$  b) $f(g(-3))$ .
4. a. If $g(x) = 2x - 5$ and $f(x) = x^2 + 1$ , compute $f \circ g(x)$ .  b. If $g(x) = 2x - 5$ and $f(x) = x^2 + 1$ , compute $g \circ f(x)$ .  c. If $g(x) = 2x - 5$ and $f(x) = x^2 + 1$ , compute $g \circ f(-3)$ .  d. If $g(x) = 2x - 5$ and $f(x) = x^2 + 1$ , compute $g \circ g(x)$ .		5. a. Compute $g(f(x))$ if $g(x) = 4x - 2$ and $f(x) = 3x + 4$ .  b. Compute $f(g(x))$ if $g(x) = 4x - 2$ and $f(x) = 3x + 4$ .  c. Compute $f(f(-4))$ if $f(x) = 3x + 4$ .  d. Compute $g(f(x))$ if $g(x) = x^2 - 2x + 6$ and $f(x) = 3x + 4$ . <i>This one is tricky! PUSH IT!!</i>

For problems #6-11, use the table definitions of  $H(t)$  and  $r(t)$  shown below to find the indicated value.

$t$	1.0	1.5	2.0	2.5	3.0	3.5
$H(t)$	2.8	2.6	2.5	2.0	1.0	2.2

$t$	2.0	2.2	2.4	2.6	2.8	3.0
$r(t)$	1.2	1.5	3.0	2.8	2.5	2.0

\*Rewrite in  $f(g(x))$  form if the composition is hard to see.\*

6)  $(r \circ H)(2.5)$

7)  $(r \circ H)(1.0)$

8)  $(H \circ r)(2.2)$

9)  $(H \circ r)(3.0)$

10)  $(H \circ H)(2.0)$

11)  $(r \circ r)(2.4)$

12.  $f(x) = 3x^2 + 2x - 1$ ,  $g(x) = 2x - 4$   
Find  $f \circ g(3)$ .

13. Let  $w(x) = 2x^2 + 1$ . Find  
 $w \circ w(-4)$ .

14. Let  $j(x) = 2x^2 + x$ . Find  $j(j(3))$ .

15. Let  $f(x) = 2x + 5$  and  $g(x) = x - 8$ .  
a) Find  $f(g(3))$

16. Let  $p(x) = x^2 + x$  and  $r(x) = \sqrt{x}$ .  
a) Find  $(p \circ r)(4)$

17. Let  $f(x) = 3x + 2$  and  $g(x) = x + 2$ .  
a) Find  $f(g(-2))$

b)  $g(f(3))$

b)  $(r \circ p)(4)$  – Leave in radical form!

b)  $g(f(-2))$